

REMARKS

Applicants thank Examiner Zimmerman for indicating that Claims 6-9 are allowed.

Applicants have amended Claims 6, 8, and 9 to be in independent form. Upon entry of the amendment, the claimed glass of Claim 1 is clearly distinguishable from the glasses disclosed in the references of record, and believe that all pending claims will be in a condition for allowance.

The rejection of any one of Claims 1-20 under any subsection of 35 U.S.C. § 102 over the disclosures of U.S. Patent Nos. 6,555,594 (US '594); 6,238,847 (US '847); 4,824,809 (US '809) and U.S. Patent Application Publication No. US 2001/0024582 (US '582) is respectfully traversed.

Since the issues pertain to the compositional ranges of the claimed glass compared to the disclosed glasses, Applicants have prepared the following Table that provides a direct comparison to compositional ranges of the claimed and disclosed glasses.

Component(s)	Claim 1	US '594 <sup>a</sup>	US '582 <sup>b</sup>	US '582 <sup>c</sup>	US '847 <sup>d</sup>	US '809 <sup>e</sup>
PbO	35-55	48-82	40~90	40-60	0-75	52-60
B <sub>2</sub> O <sub>3</sub>	15-30	0.5-22	5~30	10-20	0-40	10-18
SiO <sub>2</sub>	4-15	3-32	10~40	20-40	0-75	12-20
B <sub>2</sub> O <sub>3</sub> +SiO <sub>2</sub>	20-44	3.5-54	15~70	30-60	0-115	22-38
Al <sub>2</sub> O <sub>3</sub>	1-10	0-12	0~20	0-10	0-15	2-7
BaO	12-20	0-10	nd <sup>f</sup>	nd	nd	nd
CuO	0-1	nd	nd	nd	0-7	nd
Ti+Zr+La+Ta <sup>g</sup>	0.5-10	0-2.5	0~10	0-5	0-23	2.5-17.5

<sup>a</sup>US '594 at col. 14, lines 34-40. <sup>b</sup>US '582 "Glass Frit B," see page 5, [0079]. <sup>c</sup>US '582 "Insulating Layer Glass," see page 5, [0060]. <sup>d</sup>US '847 at col. 3, line 63 – col. 4, line 12. <sup>e</sup>US '809 at col. 3, line 65 – col. 4, line 12. <sup>f</sup>nd: Not disclosed.

<sup>g</sup>Ti+Zr+La+Ta: TiO<sub>2</sub>+ZrO<sub>2</sub>+La<sub>2</sub>O<sub>3</sub>+Ta<sub>2</sub>O<sub>5</sub>.

The Examiner's attention is directed to the compositional amount of BaO in the claimed glass for covering electrodes, Claim 1, when compared to the compositional amount of BaO in each of the glasses described in US '594, US '582, US '847, and US '809.

Claim 1 limits the amount of BaO from 12 mass% to 20 mass%. This limitation clearly distinguishes the claimed glass from the disclosed glasses.

US '594 describes a glass containing lead oxide as a main component, but the amount of BaO ranges from 0 to 10 wt%. It is noted that US '594 describes other glasses that contain BaO in a certain range, but these glasses have bismuth, zinc, or lithium oxides as a main component ( $\text{Bi}_2\text{O}_3$ : col. 14, lines 41-46;  $\text{ZnO}$ : col. 14, lines 47-52;  $\text{Li}_2\text{O}$ : col. 14, lines 53-59). These glasses are certainly different from that which is presently claimed.

The Office has asserted that US '594 discloses a glass containing lead oxide as a main component, that also contains "from 0 to 25% of BaO" (see April 5, 2005 Office Action, page 4, lines 1-2). Additionally, the Office has asserted that US '594 discloses a glass containing lead oxide as a main component, in which "BaO is present in the glass in an amount that is at least 1% and at most 20%" (see April 5, 2005 Office Action, page 5, ¶ 3).

Applicants seasonably challenge these two assertions, as nowhere in US '594 is it disclosed that a glass containing lead oxide as a main component also has BaO in any amount other than 0-10% (see col. 14, line 38).

US '594 discloses a glass containing bismuth oxide as a main component, in which 1-25 wt% of BaO is also present (see col. 14, lines 41-45). US '594 also discloses a glass containing zinc oxide as a main component, in which 0-20 wt% of BaO is also present (see col. 14, lines 47-51). Finally, US '594 discloses a glass containing lithium oxide as a main component that also contains 1-20 wt% of BaO (see col. 14, lines 53-59). But these glasses are clearly different from the claimed glass recited in Claim 1.

The Office has also asserted that US '582 discloses a glass containing lead oxide as a main component, which also contains BaO in an amount that ranges from 0 to 25% (see April 5, 2005 Office Action, page 6, lines 1-2).

Applicants challenge this assertion. US '582 discloses on page 5, Table 4, a glass having PbO (40~90 wt%), SiO<sub>2</sub> (10~40 wt%), B<sub>2</sub>O<sub>3</sub> (5~30 wt%), TiO<sub>2</sub> (0~10 wt%), and Al<sub>2</sub>O<sub>3</sub> (0~20 wt%). But nowhere in US '582 is it disclosed to have a glass containing lead oxide as a principle component that also contains BaO.

Additionally, the Office has asserted that US '847 discloses a glass containing lead oxide as a main component, which also contains BaO in an amount that ranges from 0 to 25% (see April 5, 2005 Office Action, page 7, ¶ 3, lines 6-7).

US '847 discloses a glass that "may comprise from 0 to about 75 weight percent **lead oxide**, from 0 to about 75 weight percent **bismuth oxide**, from 0 to about 75 weight percent **silica**, from 0 to about 50 weight percent **zinc oxide**, from 0 to about 40 weight percent **boron oxide**, from 0 to about 15 weight percent **aluminum oxide**, from 0 to about 15 weight percent **zirconium oxide**, from 0 to about 8 weight percent **titanium oxide**, from 0 to about 20 weight percent **phosphorous oxide**, from 0 to about 15 weight percent **calcium oxide**, from 0 to about 10 weight percent **manganese oxide**, from 0 to about 7 weight percent **copper oxide**, from 0 to about 5 weight percent **cobalt oxide**, from 0 to about 15 weight percent **iron oxide**, from 0 to about 20 weight percent **sodium oxide**, from 0 to about 20 weight percent **potassium oxide**, from 0 to about 15 weight percent **lithium oxide** and from 0 to about 7 weight percent **fluoride**, as well as other oxides conventionally used in glass frit compositions (Emphasis added. See col. 3, line 63 – col. 4, line 12).

But nowhere in US '847 is it disclosed to have a glass containing lead oxide as a main component that also contains **BaO**.

Finally, the Office has asserted that US '809 discloses a glass containing lead oxide as a main component in which BaO is present in an amount that ranges "from 0 to 25%" (see April 5, 2005 Office Action, page 9, ¶ 3, lines 6-7).

This is not correct. Nowhere in US '809 is BaO disclosed as being a component of any glass.

Therefore, the claimed glass for covering electrodes is novel over each one of the above-noted disclosures.

It is kindly requested that the Examiner acknowledge the same and withdraw these rejections.

Additionally, it is believed that the claimed glass for covering electrodes, Claim 1, is unobvious over the combined disclosures. The only reference that describes BaO in a glass containing lead oxide as the main component is US '594. In this case, US '594 describes an amount of BaO that ranges from 0-10. Amended Claim 1 recites 12-20 mass% BaO. The two ranges do not overlap. Moreover, there is no suggestion in US '594 to have a glass containing lead oxide as the main component with at least 12 wt% BaO. Therefore, there can be no issue of obviousness.

It is noted that US '582 does describe a glass that contains BaO that ranges from 2~40 wt%, but this glass contains **bismuth oxide** as the main component (see Glass Frit A, page 5, [0078]). It is also noted that US '582 states that "a mixture of glass frit A and glass frit B, described generally in Table 3, may be used," in which "it is desirable to contain about 90 wt% of the composition like in a table 4" (page 5, [0078]). The suggestion taken from this passage indicates that US '582 suggests a glass containing lead oxide as a main component that also has BaO, but a quick calculation shows that if 90% of glass frit A is used, then only 10% of glass frit B is used, which means that the suggested amount of *BaO is at most 4 wt%*. This is clearly different from the amount of 12-20% of BaO which is presently claimed. Finally, US '582 describes a "compound glass frit" on page 6 (see Table 5), but this glass is unlike the presently claimed glass since it contains both Bi<sub>2</sub>O<sub>3</sub> and PbO as main components.

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(Table 5 of US '582 contains a typographical error. The first component listed as "B<sub>2</sub>O<sub>3</sub>" should read "Bi<sub>2</sub>O<sub>3</sub>."

Since neither US '847 nor US '809 describe a glass that contains BaO, there can be no suggestion gleaned from either one of these disclosures.

Consequently, it is believed that the claimed glass for covering electrodes is unobvious over the combined disclosures of US '594, US '582, US '847, and US '809.

It is kindly requested that the Examiner acknowledge the same.

The objection to the drawings should be withdrawn, as **the present application contains no drawings.**

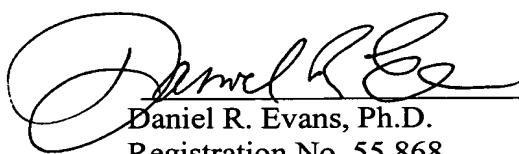
In view of the amendments to the claims and the comments contained herewith, it is believed that the present application is in an immediate condition for allowance. Should the Examiner deem that a personal or telephonic interview would be helpful in advancing this application toward allowance, he is encouraged to contact Applicants' undersigned representative at the below-listed telephone number.

Respectfully submitted,

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